OCEAN GALES AND STORMS, MAY 1939

Vessel	Voyage		Position at time of lowest barometer		Gale began May	Time of lowest barometer, May	Gale ended May	Lowest barometer	Direction of wind when gale began	Direction and force of wind at time of lowest barometer	Direction of wind when gale ended	Direction and highest force of wind	Shifts of wind near time of lowest barometer
	From—	To—	Latitude	Longitude									
NORTH ATLANTIC OCEAN			° ′	° ′				*Inches*					
Heddernheim, Ger. S. S.	Iggesund	Portland, Maine.	52 18 N.	35 42 W.	1	4a, 2	2	29.43	SE	SSW, 8	W	W, 9	SSW-W.
Amapala, Hond. S. S.	Ceiba	New York	31 36 N.	78 36 W.	3	7p, 2	3	29.91		N, 6		NW, 8	W-N-NNW.
Heddernheim, Ger. S. S.	Iggesund	Portland, Maine.	52 00 N.	36 00 W.	3	3a, 3	5	29.36	SSE	SW, 8	NW	W, 10	SSE-SW-NW.
Cities Service Koolmotor, Am. S. S.	Texas City	Boston	37 30 N.	72 00 W.	2	4a, 3	3	29.32	NE	NE, 12	E	NE, 12	NE-E.
Gulfwing, Am. M. S.	Las Piedras	New York	38 10 N.	73 38 W.	2	4a, 3	3	29.69	NE	NE, 9	NE	NE, 9	None.
Barbara, Am. S. S.	San Juan	Philadelphia	35 12 N.	73 30 W.	3	6a, 3	4	29.74	NNW	NW, 6	NW	NNW, 11	WNW-NNW.
Knoxville City, Am. S. S.	Avonmouth	Portland, Maine.	46 21 N.	31 36 W.	1	Noon, 3	4	[1] 29.66	S	SW, 7	WNW	WNW, 9	SSW-WNW.
Mormacsea, Am. S. S.	Copenhagen	New York	51 30 N.	33 10 W.	3	4p, 3	4	29.23	WSW	WSW, 9	NW	NW, 10	WSW-NW.
Tennessee, U. S. N.	New York	Cristobal	38 46 N.	73 45 W.	3	4p, 3	4	29.74	NE	N, 11	WNW	N, 11	NE-N.
San Jose, Am. S. S.	Boston	Cortes	37 38 N.	71 57 W.	3	6p, 3	4	29.36	E	SSE, 7	SW	NNW, 8	SSE-Var-NW.
Nankai Maru, Jap. M. S.	Hamburg	New York	47 34 N.	26 07 W.	3	8p, 3	5	29.59	WSW	WSW, 7	NW	WNW, 8	SW-W.
Svanhild, Dan. S. S.	Aalborg	do	40 30 N.	71 30 W.	3	7a, 4	4	29.68	NE	NW, 8	NW	NW, 8	
Javanese Prince, Br. M. S.	Dakar	Halifax	[2] 44 12 N.	63 02 W.	4	2a, 5	4	29.45		E, 6		ESE, 8	ENE-E.
West Cohas, Am. S. S.	New Orleans	Liverpool	50 14 N.	17 23 W.	3	Noon, 5	5	29.30	SW	W, 5	W	W, 8	W-WSW.
Jean Lafitte, Am. S. S.	Mobile	do	49 10 N.	21 25 W.	3	2p, 5	5	29.26	WSW	NW, 8	NW	NW, 8	WNW-NW.
Pres. Garfield, Am. S. S.	Gibraltar	New York	41 20 N.	55 00 W.	5	4p, 5	6	29.60	WSW	SW, 8	NW	WNW, 8	SSW-WSW.
Duchess of Atholl, Br. S. S.	Quebec	Liverpool	53 00 N.	22 48 W.	4	5p, 5	5	29.05	W	WNW, 6	WNW	WNW, 8	WNW-NW.
Cheyenne, Br. M. S.	Baytown	Gothenburg	[2] 53 58 N.	22 49 W.	3	8p, 5	4	[1] 29.22	WSW	WNW, 4	W	NW, 10	WNW-SW.
Collamer, Am. S. S.	Havre	New York	41 03 N.	53 20 W.	5	8a, 6	6	29.58	W	W, 9	NW	W, 9	W-NW.
R. G. Stewart, Am. S. S.	Las Piedras	Southampton	35 58 N.	46 34 W.	8	8a, 8	9	29.52	NW	SW, 6	NW	NNW, 8	SSW-NW.
Montreal City, Br. S. S.	Fowey	Portland, Maine.	48 36 N.	29 52 W.	8	Noon, 8	8	29.39	SW	SW, 8	SW	SW, 8	SSE-SW.
Lucia C, Ital. S. S.	Gibraltar	New York	35 12 N.	43 00 W.	7	1p, 8	9	29.64	SW	SW, 7	NW	SW, 8	SW-NW.
Scanpenn, Am. S. S.	Copenhagen	do	55 30 N.	25 25 W.	9	1a, 9	9	29.32	SW	SW, 7	SW	SW, 9	S-SW.
Montreal City, Br. S. S.	Fowey	Portland, Maine.	48 10 N.	34 04 W.	9	Noon, 9	9	28.92	SSE	SSE, 8	WSW	WSW, 10	SSE-WSW.
Kentucky, Dan. S. S.	Aalborg	Norfolk	50 13 N.	35 31 W.	9	7p, 9	9	28.72	S	WSW, 10	SW	WSW, 10	S-WSW.
West Cobalt, Am. S. S.	New Orleans	Liverpool	[2] 37 16 N.	67 37 W.	17	4a, 17	17	29.61	S	S, 6	SSW	SSW, 8	E-S.
Exmouth, Am. S. S.	Gibraltar	New York	40 14 N.	65 00 W.	17	8p, 17	18	29.67	S	S, 9	S	S, 9	None.
Chelan, U. S. C. G.	On ice patrol out from.	Halifax	43 45 N.	48 26 W.	20	8a, 21	20	29.84	S	SW, 4	SW	S, 10	
Arundo, Du. S. S.	Rotterdam	Habana	49 18 N.	45 54 W.	20	Noon, 21	21	[1] 29.29		NW, 4		SW, 8	
American Shipper, Am. S. S.	Belfast	Boston	53 12 N.	19 18 W.	22	11a, 22	22	29.60		SSW, 8		SSW, 8	SSW-W.
Chelan, U. S. C. G.	On ice patrol out from.	Halifax	40 48 N.	49 06 W.	23	3p, 23	23	30.09	E	SW, 6	E	E, 9	E-SW.
Boston City, Br. S. S.	Montreal	Cardiff	48 36 N.	32 10 W.	24	10p, 24	25	30.07	S	S, 9	SW	SSW, 9	S-SW.
Chelan, U. S. C. G.	On ice patrol out from.	Halifax	40 20 N.	50 53 W.	24	6a, 25	25	30.05	SW	SW, 9	WSW	SW, 9	SW-WSW.
Rotterdam, Du. S. S.	Rotterdam	New York	[2] 41 06 N.	62 06 W.	28	10p, 28	28	29.76	SW	WSW, 8	WSW	SW, 8	SW-WSW.
Henri Jaspar, Belg. S. S.	Southampton	do	40 39 N.	52 20 W.	28	2a, 29	29	29.75	S	W, 8	W	SW, 9	
Sarcoxie, Am. S. S.	Bremen	Boston	41 00 N.	54 30 W.	28	2a, 29	29	29.77	S	SW, 7	WSW	SW, 8	SSW-WSW.
Excello, Am. S. S.	Gibraltar	New York	39 54 N.	44 42 W.	29	6p, 29	29	29.84	SW	SW, 8	SSW	SW, 8	SW-SSW.
Do	do	do	39 24 N.	51 24 W.	31	6p, 31	31	29.81	SW	SW, 8	WSW	SW, 8	SW-NNW.
NORTH PACIFIC OCEAN													
City of Dalhart, Am. M. S.	Hong Kong	Los Angeles	39 48 N.	177 01 E.	2	2a, 3	3	29.66	NNE	NNE, 8	N	N, 9	NW-NNE.
Lacklan, Br. S. S.	Tarakan, Borneo.	Nagasaki	12 38 N.	124 14 E.	2	4a, 3	3	29.76	N	N, 3	SE	ENE, 7	N-NE.
Toorak, Br. S. S.	Hondagua	Los Angeles	37 13 N.	175 40 E.	2	8a, 3	4	29.84	N	NNW, 8	N	NNW, 8	None.
La Placentia, Am. S. S.	Port San Luis, Calif.	Vancouver, B. C.	41 56 N.	124 24 W.	4	2p, 5	5	29.93	NW	NNW, 8	N	NW, 8	None.
Ferncastle, Nor. M. S.	Shanghai	Los Angeles	43 29 N.	169 45 E.	7	2p, 8	9	29.61	E	ESE, 8	ESE	E, 9	E-ESE.
San Clemente Maru, Jap. M. S.	Los Angeles	Moji	32 40 N.	138 30 E.	8	10p, 8	9	29.06	ESE	S, 9	NNW	N, 10	SE-S-N.
Lacklan, Br. S. S.	Tarakan, Borneo.	Nagasaki	30 56 N.	135 45 E.	8	3p, 8	8	29.12	SE	N, 11	N	N, 12	S-N-NNE.
Silverpalm, Br. M. S.	Bugo, P. I.	Los Angeles	30 36 N.	170 22 W.	9	9p, 9	10	29.41	W	W, 8	NW	NNW, 8	W-NE.
Toa Maru, Jap. M. S.	Los Angeles	Tokuyama	46 15 N.	152 30 W.	12	7p, 12	12	29.27	S	SW, 7	W	SSW, 8	S-WNW.
Ixion, Br. S. S.	Yokohama	Victoria, B. C.	49 50 N.	151 55 W.	11	2a, 12	13	28.96	NNE	NE, 7	SSW	S, 9	NNE-S.
Evita, Nor. M. S.	Manila	Los Angeles	[2] 35 30 N.	143 50 E.	19	6p, 21	22	29.30	E	NNW, 9	NW	NNW, 9	NW-NNW.
Bengkalis, Du. S. S.	do	San Francisco	33 50 N.	144 41 E.	21	8p, 21	23	29.44	WNW	WSW, 5	WNW	WNW, 8	WSW-WNW.

[1] Barometer uncorrected.

[2] Position approximate.

NORTH PACIFIC OCEAN, MAY 1939

By WILLIS E. HURD

Atmospheric pressure.—Although a considerable number of low-pressure areas crossed northern waters of the North Pacific during May 1939, they were not sufficiently deep to cause an average Aleutian LOW of much intensity. The lowest average pressure at a coastal land station in this region was 29.83 inches at Kodiak, which was 0.01 inch below the normal of the month. At St. Paul, in the Bering Sea, the average pressure, 29.96, was 0.12 inch above the normal, and readings at Dutch Harbor and Petropavlosk were above by nearly the same amount. Elsewhere, changes from the normal of May were small.

There were a number of days with pressure above 30 inches over the Aleutian region during the early half of the month. On the average for May, however, high pressure lay over that part of the ocean between about 35° and 50° N. along the American coast, and from there southwestward to beyond Midway Island.

TABLE 1.—*Averages, departures, and extremes of atmospheric pressure at sea level, North Pacific Ocean, May 1939, at selected stations*

Stations	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Inches	*Inch*	*Inches*		*Inches*	
Point Barrow	29.99	−0.10	30.22	12	29.54	5
Dutch Harbor	29.94	+.10	30.44	8	29.36	17
St. Paul	29.96	+.12	30.40	8	29.30	17
Kodiak	29.83	−.01	30.30	1	29.54	27
Juneau	29.93	−.06	30.33	10	29.12	28
Tatoosh Island	30.07	+.06	30.32	7	29.73	28
San Francisco	30.00	+.01	30.23	19	29.78	29
Mazatlan	29.85	.00	29.90	16, 20, 21	29.80	4, 8, 24, 29, 31
Honolulu	30.04	−.01	30.15	13	29.88	9
Midway Island	30.09	+.04	30.27	5	29.86	10
Guam	29.86	−.02	29.92	1, 4, 5	29.77	24
Manila	29.78	+.01	29.86	13	29.65	4
Hong Kong	29.75	−.03	29.86	2, 15	29.56	29
Naha	29.85	+.03	30.00	14, 15, 26	29.65	7
Titijima	29.90	−.01	30.09	26	29.65	16, 20
Petropavlosk	29.94	+.11	30.48	9	29.41	14

NOTE.—Data based on 1 daily observation only, except those for Juneau, Tatoosh Island, San Francisco, and Honolulu, which are based on 2 observations. Departures are computed from best available normals related to time of observation.

Cyclones and gales of the extratropics.—Despite the number of extratropical cyclones that crossed North Pacific waters during May 1939, none exhibited any great intensity, and the highest winds in the few gales reported for the month were not in excess of force 9. In addition to a number of cyclones that originated in high latitudes and remained in northern waters through most of their existence, there were several this month that had their origin in Japanese waters and close to the northward of Midway Island. Disturbances having the more southerly origin were those in which, as a rule, the stronger winds occurred.

As an instance of this peculiarity, may be mentioned the cyclone of May 1 to 4, which on the lst was central a little northwest of Midway Island and, after pursuing a northeasterly course, arrived in the Gulf of Alaska. The only gales reported in connection with it were of force 8 to 9, on the 2d and 3d, both experienced within the 5° region 35° to 40° N., 180° to 175° E.

On the 9th a further cyclone appeared near Midway Island. Late on that date the British motorship *Silverpalm* ran into a west gale of force 8, barometer 29.41, near 31° N., 170° W., and thereafter continued to experience moderate to fresh gales until the early morning of the 10th. The disturbance took an easterly then a north-northeasterly course and arrived in the Gulf of Alaska on the 13th. During the 11th to 13th gales of force 8 to 9 occurred within the 5° square 45° to 50° N., 150° to 155° W. Early on the 12th the British steamship *Ixion*, near 50° N., 152° W., reported the lowest barometer reading of the month, 28.96 inches, with an accompanying northeast wind of force 7. This was closely followed on ship by a wind of force 9 from the south.

On the 19th a disturbance lay south of central Japan. It took an irregular but generally northward course until the 23d, on which date the center lay east of the Kuril Islands. Thereafter its course was generally easterly to northeasterly until the 28th, when it lay off the coast of extreme southeastern Alaska. The only gales reported as accompanying this disturbance occurred on the 19th to 23d. The storm had its greatest apparent intensity during the night of the 21st-22d, when the Norwegian motorship *Evita* encountered north-northwesterly gales of force 9, lowest barometer 29.30, in the vicinity of 36° N., 144° E.

The only gale reported in the United States coastal waters was experienced by the American steamship *La Placentia* on the 5th, in latitude 41°56′ N., longitude 124°24′ W. A strong oceanic anticyclone was pressing at the time close upon the California coast.

Typhoon.—Subjoined is an account by the Reverend Bernard F. Doucette, S. J., Weather Bureau, Manila, P. I., of the typhoon of April 29 to May 9, 1939, in waters of the Far East. Mail reports from ships caught in this typhoon indicate its greatest intensity to have occurred on the 8th. The British steamship *Lacklan*, noted by Father Doucette as having a south wind of force 9, in 31° N., 136° E., at 1 p. m. of that date, ran into the full force of the storm shortly after 3. p. m. with a north gale of hurricane intensity. The lowest known barometer in connection with the typhoon was 29.06, read on board the Japanese motorship *San Clemente Maru* at 10 p. m. of the 8th, in 32°40′ N., 138°30′ E. It was accompanied by a south gale of force 9, and was followed at 10:20 p. m. by the highest wind at ship, a north gale of force 10.

Fog.—There was but little change in the amount of fog formation along the United States coast since April, but in northwestern Pacific waters, there was a considerable increase, as is usual in May. Within the area 41° to 46° N., 150° to 170° E., fog was reported on 11 days, with 4 to 5 days with fog in each of the included 5° squares. To the southeastward, between 30° and 35° N., 170° and 175° E., there were 3 days with fog. Scattered occurrences were reported to the eastward of mid-ocean, but on not more than 2 days in even the most frequented 5° square. Along the American coast ships reported 2 days with fog off Washington, 3 days with fog off Oregon, and 9 days with fog off California.

TYPHOONS AND DEPRESSIONS OVER THE FAR EAST

BERNARD F. DOUCETTE, S. J.

[Weather Bureau, Manila, P. I.]

Typhoon, April 29–May 9, 1939.—A low-pressure area appeared central about 300 miles south of Yap on the morning of April 29. It moved west-northwest, then north and north-northwest to the regions close to latitude 9°30′ N., longitude 130° E., where, during the morning hours of May 2, it intensified to depression strength. Moving in a west-northwesterly direction, it reached southern Samar during the afternoon hours of May 3 and continued during the evening and the next day toward Masbate. After it passed Masbate Island, if shifted its course to the north-northeast, then north, thus passing over the Camarines Provinces to the ocean regions east of central Luzon. Its movement on May 5 and 6, in a northerly direction, brought the center to the Balintang Channel. The shifting of the winds at Basco showed that the center moved north-northwest, reaching a position about 60 miles west of Basco, from which location it moved in an east-northeasterly direction, changing to the north when about 100 miles northeast of Basco (May 7, early morning hours). The center then moved to a position about 150 miles east of southern Formosa, where it changed to the northeast, intensifying to typhoon strength and moving more rapidly. On May 9, the center was located close to the coast line of central Japan, perhaps about 100 miles southeast of Tokyo. The afternoon hours showed the storm weakening as it moved along a northeasterly course away from Japan.

From May 2 to 6, a typhoon situation prevailed over the Philippines. On May 3 to 5, when the center was over the Visayan Islands, the lowest pressures reported